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3-22-01

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
PATENT APPLICATION

#3

In the Application of:

Guven et al.

Atty. Docket: TI-32148

Serial No.: 09/750,264

Art Unit: TBD

Filed: December 29, 2000

Examiner: TBD

For: MODEM RELAY PROTOCOL
REDUNDANCY FOR RELIABLE
LOW SPEED MODEM
COMMUNICATIONS OVER IP
NETWORKS WITH SUBSTANTIAL
PACKET LOSS

Date: April 16, 2001

Assistant Commissioner for
Patents
Washington, D.C. 20231

CERTIFICATE OF MAILING 37 CFR §1.8(a)

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D. C. 20231 on the date indicated below.

4/16/01

Warren L. Franz, Reg. No. 28,716

LETTER TO THE OFFICIAL DRAFTSPERSON

Sir:

Please find enclosed eight (8) sheets of substitute/formal drawings for the subject application as required by the Notice to File Corrected Application Papers mailed February 15, 2001, a copy of which is also enclosed.

Respectfully submitted,

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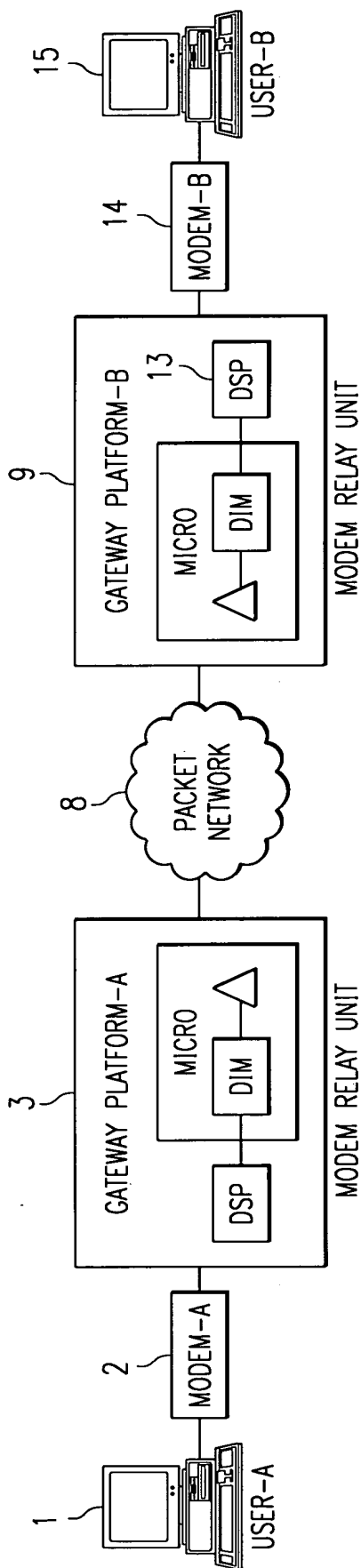


FIG. 1

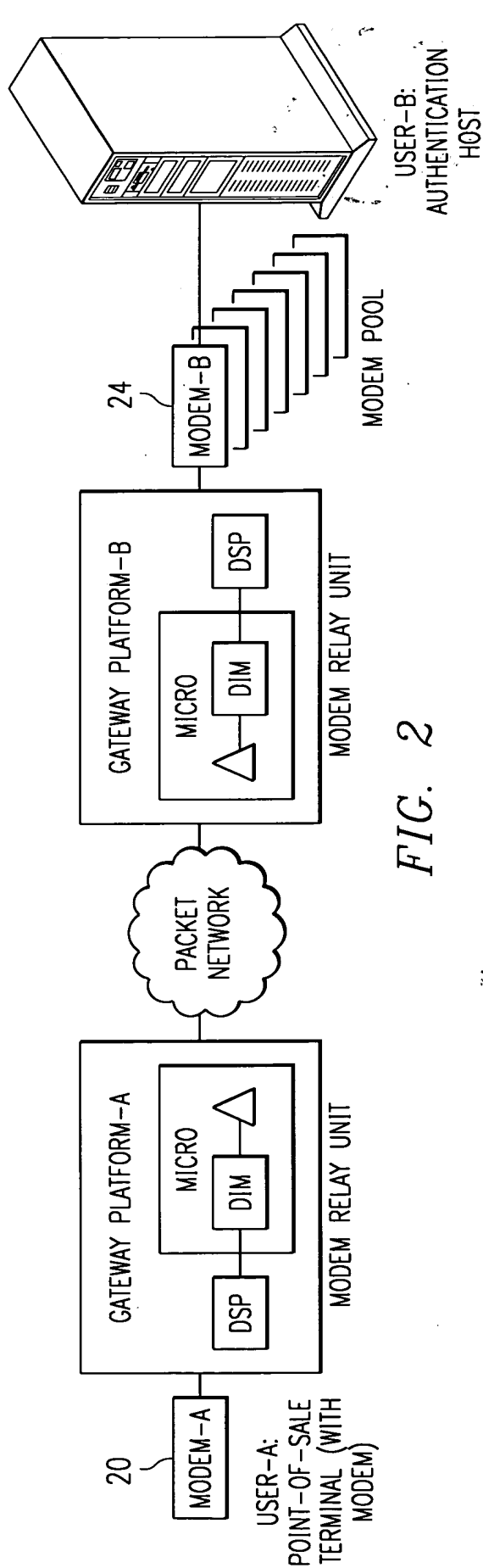


FIG. 2

[illegible]

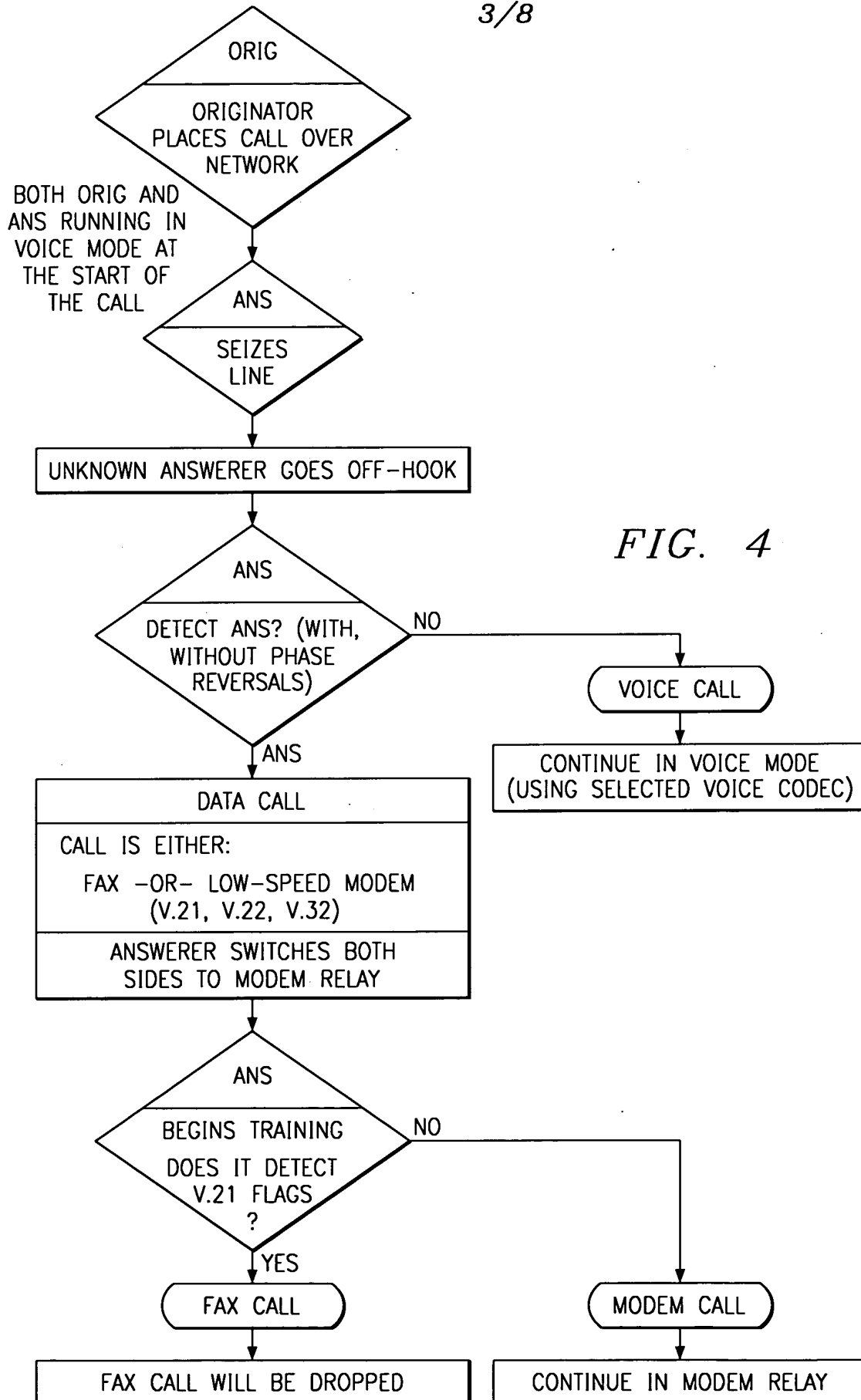
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The diagram illustrates the architecture of a GDM (Global Data Management) system. The main components and their interconnections are as follows:

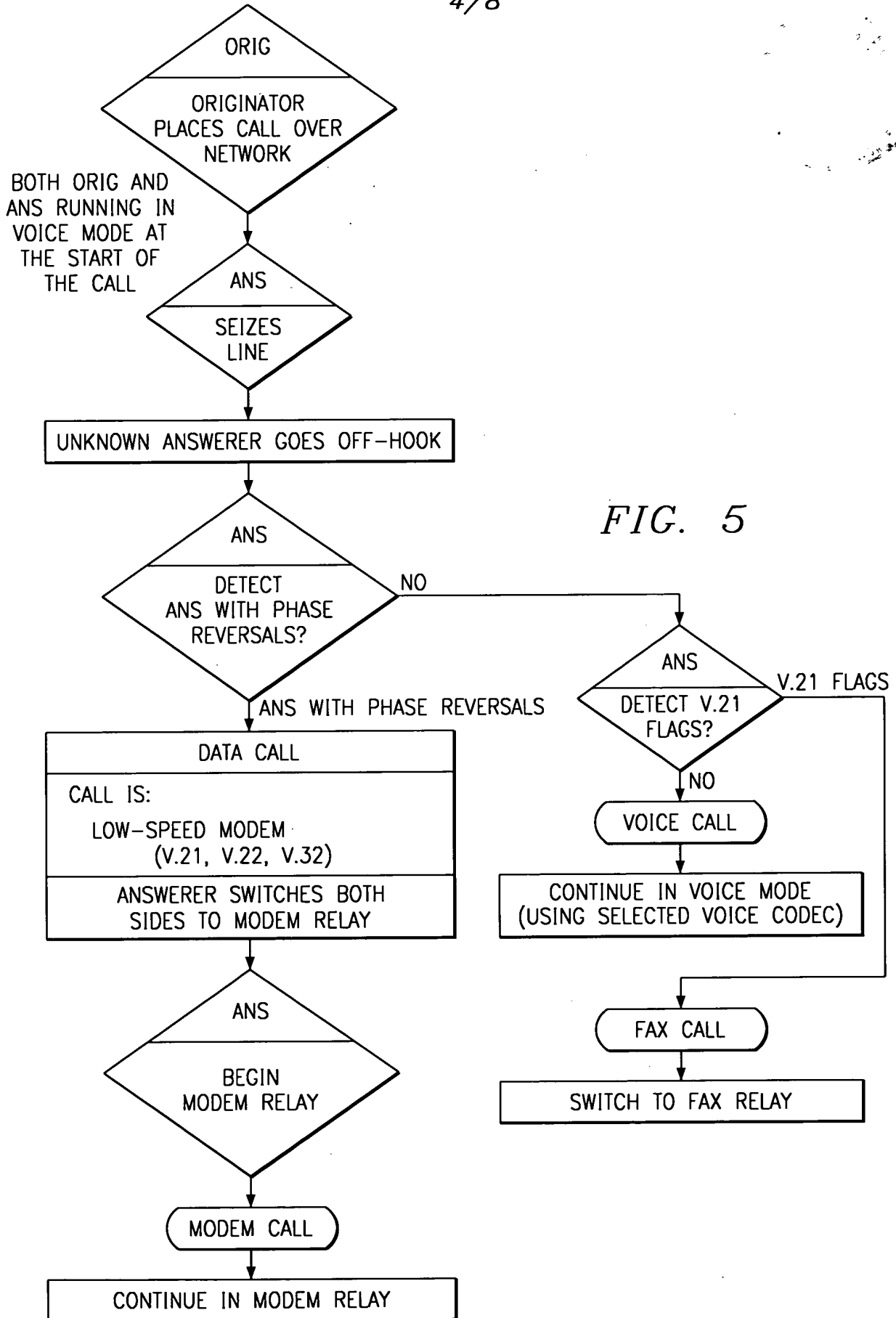
- PCM DRIVER**: The primary input/output interface, connected to the **PCM INTERFACE UNIT**.
- PCM INTERFACE UNIT**: The central processing unit for PCM data, connected to the **PCM DRIVER**, **ECHO CANCELLER UNIT**, **TX GAIN**, **RX GAIN**, **VOICE CODEC UNIT**, and **PACKETIZED VOICE PROTOCOL UNIT**.
- ECHO CANCELLER UNIT**: Connected to the **PCM INTERFACE UNIT** and **TX GAIN**.
- TX GAIN**: Connected to the **PCM INTERFACE UNIT** and **VOICE ACTIVITY DETECTION UNIT**.
- VOICE ACTIVITY DETECTION UNIT**: Connected to **TX GAIN** and **VOICE CODEC UNIT**.
- VOICE CODEC UNIT**: A central unit supporting various codecs (G.711, G.726, G.727, G.728, G.729B, G.729AB, G.732.1A). It is connected to the **PCM INTERFACE UNIT**, **PACKETIZED VOICE PROTOCOL UNIT**, **VOICE PLAYOUT UNIT**, and **ALL GDM UNITS**.
- PACKETIZED VOICE PROTOCOL UNIT**: Connected to the **VOICE CODEC UNIT** and the **HPI**.
- VOICE PLAYOUT UNIT**: Connected to the **VOICE CODEC UNIT** and the **PACKETIZED VOICE PROTOCOL UNIT**.
- ALL GDM UNITS**: A central hub for all GDM units, connected to the **VOICE CODEC UNIT**, **CALLER ID GENERATOR**, **SOFTWARE INTEGRATION UNIT**, and **MESSAGE PROCESSOR UNIT**.
- CALLER ID GENERATOR**: Connected to **ALL GDM UNITS** and the **CALLER ID DETECT** unit.
- CALLER ID DETECT**: Connected to the **PCM INTERFACE UNIT** and the **CALLER ID GENERATOR**.
- SOFTWARE INTEGRATION UNIT**: Connected to **ALL GDM UNITS** and the **MESSAGE PROCESSOR UNIT**.
- MESSAGE PROCESSOR UNIT**: Connected to the **SOFTWARE INTEGRATION UNIT** and the **HPI**.
- HPI** (Host Processor Interface): The external interface, connected to the **PACKETIZED VOICE PROTOCOL UNIT** and the **MESSAGE PROCESSOR UNIT**.

FIG. 6

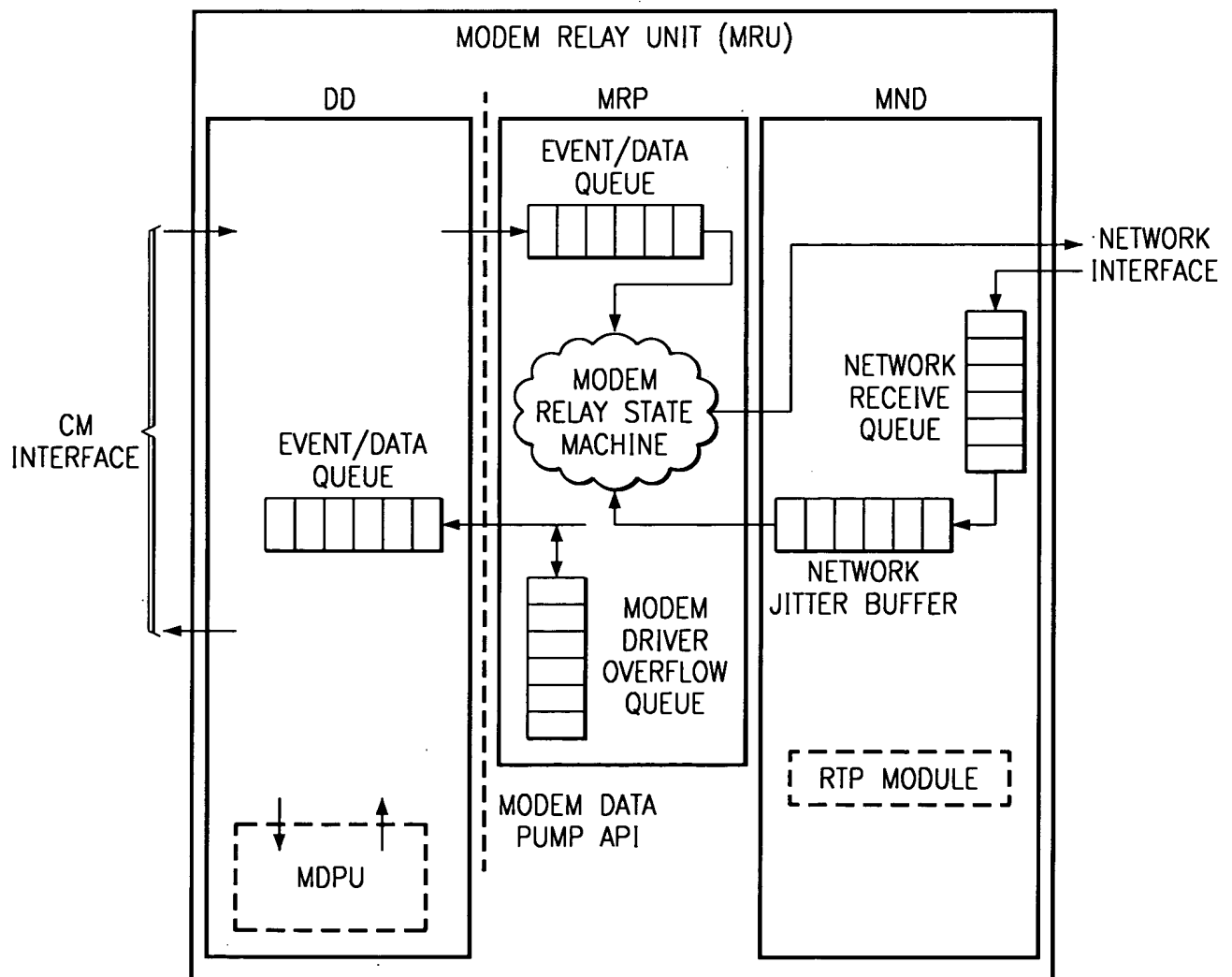
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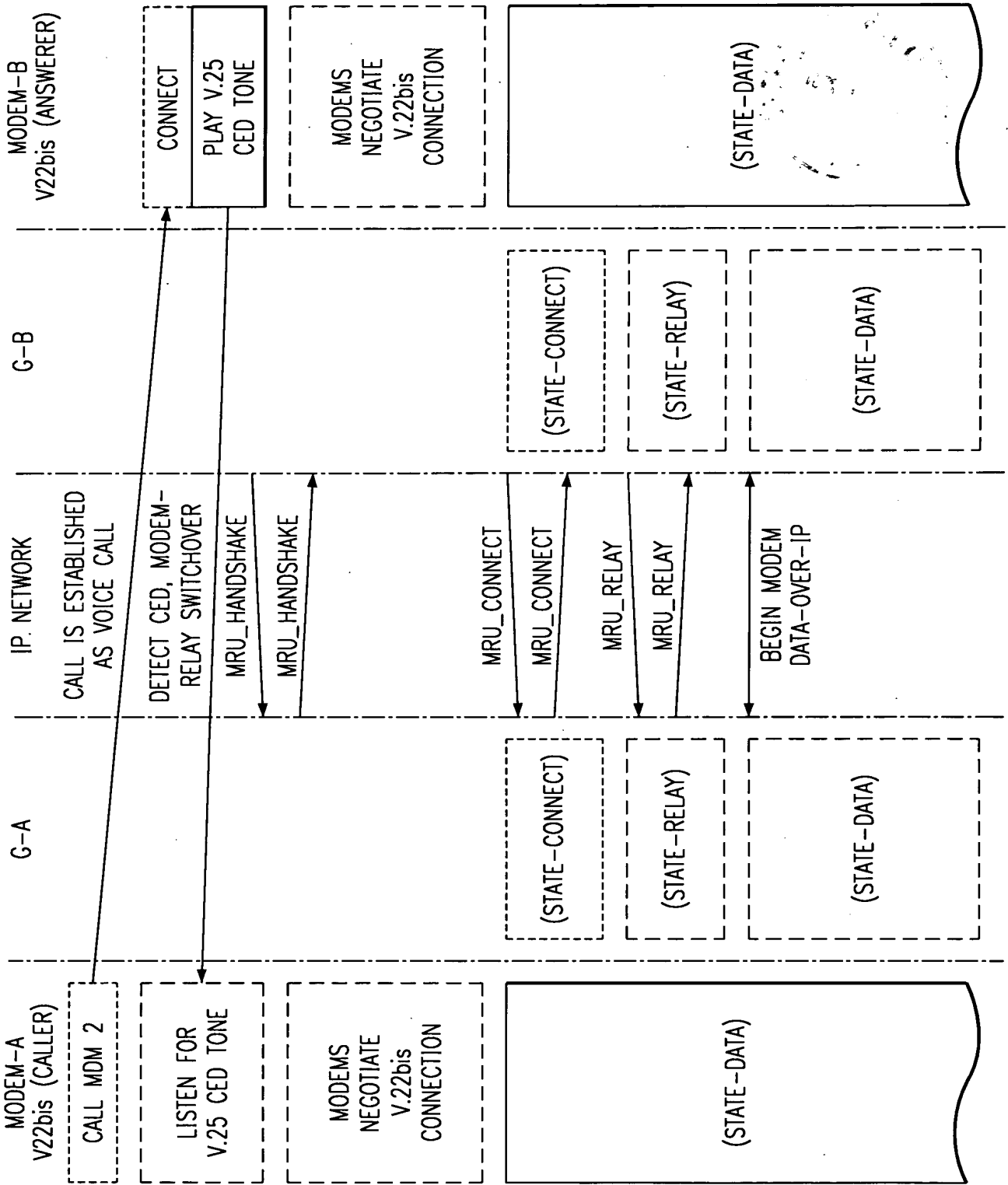


FIG. 9

FIG. 10

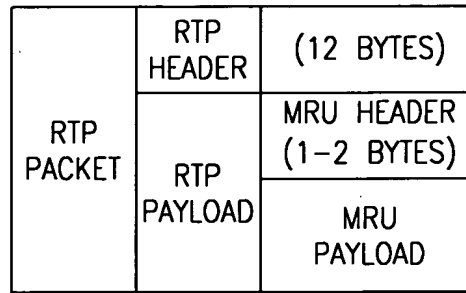
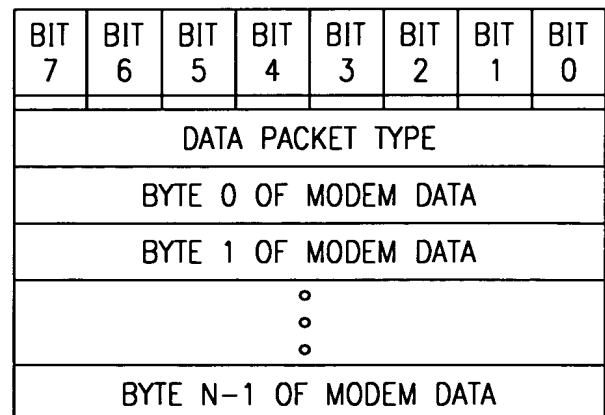
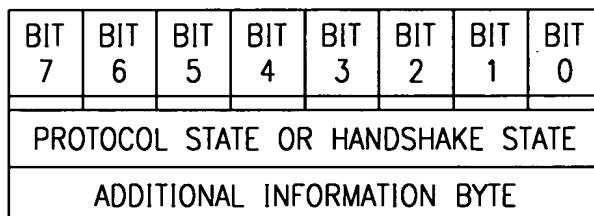
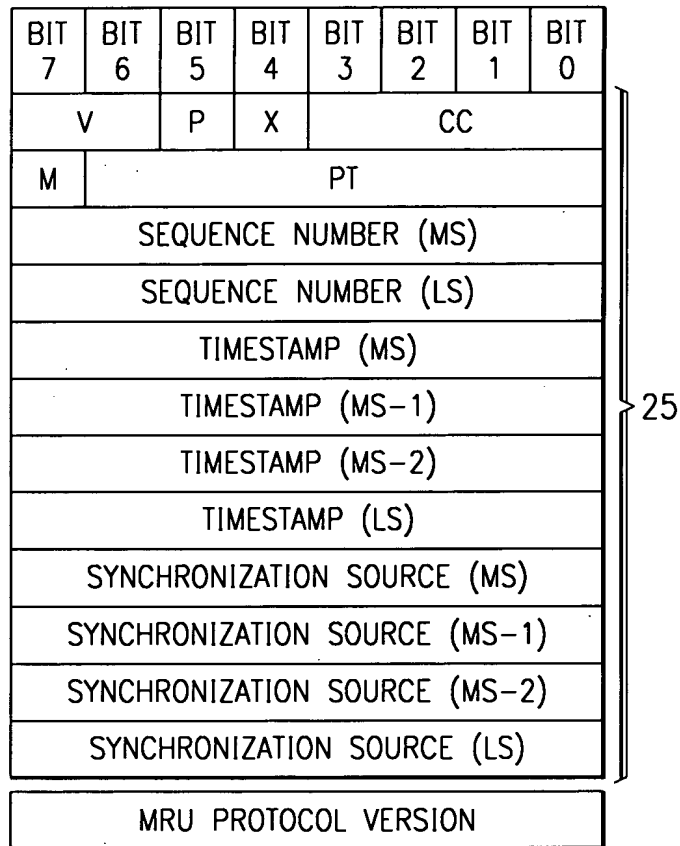


FIG. 11



MODEM RELAY PROTOCOL STATE PACKETS

PROTOCOL STATE	DESCRIPTION
OFFLINE	IDLE STATE
CARRIER LOSS	SILENCE ON THE ANALOG LINE, CARRIER LOSS
HANDSHAKE	MODEM DATA PUMPS WILL BEGIN HANDSHAKING PROCESS
CONNECT	LOCAL HANDSHAKE SESSION IS PASSED AND READY FOR MODEM RELAY
RELAY	MODEM RELAY TAKES PLACE

MODEM HANDSHAKE STATE PACKETS

HANDSHAKE STATE	DESCRIPTION
V25	V.25 ANSWER TONE IS DETECTED ON THE LOCAL ANALOG LINE
V25PR	V.25 ANSWER TONE WITH PHASE REVERSALS IS DETECTED ON THE LOCAL ANALOG LINE
V21	V.21 B1 SIGNAL IS DETECTED ON THE LOCAL ANALOG LINE
USB1	V.22 USB1 SIGNAL IS DETECTED ON THE LOCAL ANALOG LINE
S1	V.22bis S1 SIGNAL IS DETECTED ON THE LOCAL ANALOG LINE
SB1_1200	V.22bis SB1 SIGNAL @ 1200 IS DETECTED ON THE LOCAL ANALOG LINE
SB1_2400	V.22bis SB1 SIGNAL @ 2400 IS DETECTED ON THE LOCAL ANALOG LINE

MODEM DATA PACKETS

DATA TYPE	DESCRIPTION
V21	V.21 DATA @ 300 bps
V22	V.22 DATA @ 1200 bps
V22BIS	V.22bis DATA @ 2400bps

FIG. 12